

CLAIMS

WE CLAIM:

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1. An assembly comprising:
a pallet having a deck;
5 a carrier for supporting goods thereon or therein adapted to mate with the deck such that the carrier may be optionally mated with the deck or removed therefrom.
2. The assembly of Claim 1 wherein the carrier is a modular tray.⁽⁶⁰⁾
3. The assembly of Claim 2 wherein each modular tray has means on the bottom thereof for cooperating with either the deck or another tray and means⁽⁵⁰⁾ on the top thereof
10 for cooperating with another tray.
4. The assembly of Claim 3 wherein each tray and the pallet have front surfaces and further including means for ensuring the pallet and the trays are mated in a correct alignment such that the front surfaces of the trays and the front surface of the pallet are aligned with one being on top of the other and coplanar when a tray is stacked upon the
15 pallet and a tray is stacked upon another tray.
5. The assembly of Claim 2 further including
a top piece⁽¹⁰⁾ having means⁽¹¹⁾ on the bottom thereof for cooperating with a tray and wherein each modular tray has means on the top thereof for cooperating with either another tray or the top piece.
- 20 6. The assembly of Claim 5 wherein each tray, the pallet and the top piece have front surfaces and further including means for ensuring the pallet, the top piece and the trays are mated in a correct alignment such that the front surfaces of the trays¹¹¹², the front surface of the top piece and the front surface of the pallet are aligned with one being on top of the other and coplanar when a tray is stacked upon the pallet, a tray is stacked
25 upon another tray and the top piece is stacked upon a tray.
7. The assembly of Claim 6 wherein each tray has a plurality of posts projecting outwardly from each of the sides and a plurality of indentations projecting inwardly from each of the sides, each top piece has a plurality of indentations projecting inwardly from

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each of the sides and each pallet has a plurality of posts projecting outwardly from each side, the posts cooperating with the indentations.

8. The palletized tray assembly of Claim 7 wherein each tray, the pallet and the top piece have contact points in addition to the posts and the indentations so that a vertical load is transmitted through these contact points or surfaces from the top piece to each tray thereinbelow to the pallet in a more uniformly distributed manner when a tray is stacked upon the pallet or a plurality of trays is stacked upon the pallet and the top piece is stacked upon a top tray.

9. The palletized tray assembly of Claim 7 wherein each tray, pallet and top piece has a plurality of parallel ribs for contacting an abutting surface of an abutting tray, pallet or top piece.

10. The palletized tray assembly of Claim 9 wherein each tray has at least two transverse ribs projecting from a bottom of the tray, each with a contacting surface for contacting either a pallet or tray coupled thereinunder.

11. The palletized tray assembly of Claim 9 wherein each pallet has at least two transverse ribs projecting from a top of the tray, each with a contacting surface for contacting either a tray or top piece coupled thereinabove.

12. The palletized tray assembly of Claim 9 wherein each top piece has at least two transverse ribs projecting from a bottom of the top piece, each with a contacting surface for contacting either a pallet or tray thereinunder.

13. A palletized tray assembly including a pallet having a deck comprising:
a carrier for supporting goods thereon or therein adapted to mate with the deck such that the carrier may be optionally mated with the deck or removed therefrom.

14. The palletized tray assembly of Claim 13 wherein the carrier is a modular tray.

15. The palletized tray assembly of Claim 14 wherein each modular tray has means on the bottom thereof for cooperating with either the deck or another tray and means on the top thereof for cooperating with another tray.

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16. The palletized tray assembly of Claim 15 wherein each tray and the pallet have front surfaces and further including means for ensuring the pallet and the trays are mated in a correct alignment such that the front surfaces of the trays and the front surface of the pallet are aligned with one being on top of the other and coplanar when a tray is stacked upon the pallet and a tray is stacked upon another tray.

17. The palletized tray assembly of Claim 14 further including a top piece having means on the bottom thereof for cooperating with a tray and wherein each modular tray has means on the top thereof for cooperating with either another tray or the top piece.

18. The palletized tray assembly of Claim 17 wherein each tray, the pallet and the top piece have front surfaces and further including means for ensuring the pallet, the top piece and the trays are mated in a correct alignment such that the front surfaces of the trays, the front surface of the top piece and the front surface of the pallet are aligned with one being on top of the other and coplanar when a tray is stacked upon the pallet, a tray is stacked upon another tray and the top piece is stacked upon a tray.

19. The assembly of Claim 18 wherein each tray has a plurality of posts projecting outwardly from each of the sides and a plurality of indentations projecting inwardly from each of the sides, each top piece has a plurality of indentations projecting inwardly from each of the sides and each pallet has a plurality of posts projecting outwardly from each side, the posts cooperating with the indentations.

20. The palletized tray assembly of Claim 19 wherein each tray, the pallet and the top piece have contact points in addition to the posts and the indentations so that a vertical load is transmitted through these contact points or surfaces from the top piece to each tray thereinbelow to the pallet in a more uniformly distributed manner when a tray is stacked upon the pallet or a plurality of trays is stacked upon the pallet and the top piece is stacked upon a top tray.

21. The palletized tray assembly of Claim 19 wherein each tray, pallet and top piece has a plurality of parallel ribs for contacting an abutting surface.

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42 22. The palletized tray assembly of Claim 21 wherein each tray has at least two transverse ribs projecting from a bottom of the tray, each with a contacting surface for contacting either a pallet or tray coupled thereinunder.

5 23. The palletized tray assembly of Claim 21 wherein each pallet has at least two transverse ribs projecting from a top of the tray, each with a contacting surface for contacting either a tray or top piece coupled thereinabove.

4,7 24. The palletized tray assembly of Claim 21 wherein each top piece has at least two transverse ribs projecting from a bottom of the top piece, each with a contacting surface for contacting either a pallet or tray thereinunder.

10 25. The palletized tray assembly of Claim 17 wherein the pallet has a footprint defined by its outer perimeter dimensions and the top piece has the same footprint.

26. The palletized tray assembly of Claim 17 wherein the pallet has a footprint defined by its outer perimeter dimensions and each tray has the same footprint.

15 27. The palletized tray assembly of Claim 17 wherein the pallet has a footprint defined by its outer perimeter dimensions and the top piece and each tray have the same footprint.

28. A modular tray comprising:

a first end, an opposed second end, a first side, an opposed second side, each side having an upper surface and a lower surface;

20 a first interlocking component associated with the upper surface of each side and a second interlocking component associated with the lower surface of each side, the first interlocking components being positioned such that the first interlocking component of a first tray mates with the second interlocking component of an adjacent second tray placed upon the first tray only when the first ends of the two trays are aligned with one above the other.

25 29. The tray of Claim 28 wherein the first interlocking component is at least one post projecting outwardly or one indentation projecting inwardly from each of the sides and the second interlocking component is at least one indentation projecting inwardly or one

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post projecting outwardly from each of the sides, each post cooperating with each indentation.

30. The tray of Claim 29 wherein there is more than one post projecting upwardly from each of the sides of the tray and there is more than one indentation projecting upwardly in each of the sides.

31. The tray of Claim 30 wherein the tray has an imaginary median disposed between the ends forming two halves of the tray and the posts and indentations on one half of the tray are spaced from the median differently than the posts and indentations on the other half of the tray such that when the second tray is stacked upon the first tray, the posts of the first tray align and cooperate with the indentations of the second tray only when the first end of the second tray and the first end of the first tray are aligned one above the other and coplanar.

32. A modular tray comprising:

a first end, an opposed second end, a first side, an opposed second side, a top surface, a bottom surface, and an imaginary median disposed between the ends forming two halves of the tray; and,

at least one post projecting outwardly or one indentation projecting inwardly from each of the sides and at least one indentation projecting inwardly or one post projecting outwardly from each of the sides, each post cooperating with each indentation, the posts and indentations on one half of the tray being spaced from the median differently than the posts and indentations on the other half of the tray such that when a first tray is stacked upon a second tray, the posts of one tray align and cooperate with the indentations of the other tray only when the first end of the second tray and the first end of the first tray are aligned one above the other and coplanar.

33. The tray of Claim 32 wherein there is more than one post projecting upwardly from each of the sides of the tray and there is more than one indentation projecting upwardly in each of the sides.

34. The tray of Claim 33 wherein each indentation is aligned vertically with a post.

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FOOTNOTES

AY 35. The tray of Claim 34 wherein each post and each indentation is trapezoidal in shape.

36. The tray of Claim 32 wherein the tray has a plurality of parallel channels formed in the top surface thereof with each channel being separated by a longitudinal wall.

5 37. The tray of Claim 36 wherein at least one longitudinal wall is higher than other walls for abutting the bottom surface of another tray or a top piece stacked thereon.

38. The tray of Claim 36 wherein at least two longitudinal walls are higher than other walls for abutting the bottom surface of another tray or a top piece stacked thereon.

10 39. The tray of Claim 38 further including a stop formed at an end of a channel at an end of the tray for preventing goods stored in the channel from being moved out of the tray at the end with the stop.

15 40. The tray of Claim 39 further including a first end and an opposed second end overhanging respectively upon the first end and an opposed second end of a tray placed underneath to block the goods from sliding out of the channels in the tray placed underneath.

41. The tray of Claim 36 wherein the tray has a plurality of parallel transverse ribs formed in the bottom surface thereof, the bottom surfaces of the transverse ribs being in direct contact with top surfaces of longitudinal walls formed in a tray placed underneath the tray when the trays are mated.

20 42. The tray of Claim 32 wherein the tray has a plurality of parallel transverse ribs formed in the bottom surface thereof.

43. The tray of Claim 32 wherein the tray has at least one pocket on each side serving as the lifting points for stacking and de-stacking.

25 44. A top piece for cooperating with a tray having a first and second end and a first and second side comprising:

a first end, an opposed second end, a first side, an opposed second side, each side having an upper surface and a lower surface; and,

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a first interlocking component associated with the lower surface of each side positioned such that it mates with a second interlocking component of a tray placed below the top piece only when the first ends of the tray and top piece are aligned with one above the other.

5 45. The top piece of Claim 44 wherein the first interlocking component is at least one post projecting outwardly or one indentation projecting inwardly from each of the sides and the second interlocking component is at least one indentation projecting inwardly or one post projecting outwardly from each of the sides, each post cooperating with each indentation.

10 46. The top piece of Claim 44 wherein the first interlocking component is a plurality of indentations projecting inwardly from each of the sides and the second interlocking component is a plurality of posts projecting outwardly from each of the sides, each post cooperating with each indentation.

15 47. The top piece Claim 46 wherein the top piece has an imaginary median disposed between the ends forming two halves of the top piece and the posts and indentations on one half of the top piece are spaced from the median differently than the posts and indentations on the other half of the top piece such that when the top piece is stacked upon the tray, the posts of the top piece align and cooperate with the indentations of the tray only when the first end of the top piece and the first end of the tray are aligned one above the other and coplanar.

20 48. A top piece for mating with either a tray or pallet comprising:
a first end, an opposed second end, a first side, an opposed second side, a top surface, a bottom surface, and an imaginary median disposed between the ends forming two halves of the top piece; and,

25 at least one indentation projecting inwardly from each of the sides for cooperating with at least one post projecting outwardly from each of the sides of the tray or pallet, the indentations on one half of the top piece being spaced from the median differently than the indentations on the other half of the top piece such that when the top piece is stacked

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upon the tray or pallet, the posts of the tray or pallet align and cooperate with the indentations of the top piece only when the first end of the top piece and the first end of the tray or pallet are aligned one above the other and coplanar.

49. The top piece of Claim 48 wherein there is more than one post projecting upwardly from each of the sides of the tray and there is more than one indentation projecting upwardly in each of the sides of the top piece.

50. The top piece of Claim 49 wherein each post and each indentation is trapezoidal in shape.

51. A top piece comprising:

a plurality of ribs on the under side of the top piece, bottom surfaces of the ribs being in direct contact with top surfaces of longitudinal walls on a tray coupled underneath the top piece while indentations or posts on the top piece engage posts or indentations on the tray coupled underneath.

52. The top piece of Claim 51 further comprising a first end and an opposed second end overhanging a first end and an opposed second end of a tray coupled underneath to block any goods from sliding out of channels carried in the tray underneath.

53. The top piece of Claim 52 further including projections raised from a top surface thereof to align with openings formed in a pallet to prevent sliding between the pallet and top piece.

54. The top piece of Claim 51 wherein the tray has at least one pocket on each side serving as lifting points for stacking and de-stacking.

55. A pallet for cooperating with a tray or top piece having a first and second end and a first and second side comprising:

a first end, an opposed second end, a first side, an opposed second side, each side having an upper surface, and,

a first interlocking component associated with the upper surface of each side positioned such that it mates with a second interlocking component of a tray or top piece

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placed on top of the pallet only when the first ends of the tray or top piece and pallet are aligned with one above the other.

56. The pallet of Claim 55 wherein the first interlocking component is at least one post projecting outwardly from the sides and the second interlocking component is at least one indentation projecting inwardly into the sides of the tray or top piece.

57. The pallet of Claim 56 wherein the pallet has two ends with an imaginary median disposed between the ends forming two halves of the pallet and the posts on one half of the pallet are spaced from the median differently than the posts on the other half of the pallet such that when a pallet or top piece is stacked upon the pallet, the posts of the pallet align and cooperate with the indentations of the tray or top piece only when the first end of the pallet and the first end of the top piece of tray are aligned one above the other and coplanar.

58. A pallet for mating with either a tray or top piece comprising:
a first end, an opposed second end, a first side, an opposed second side, a top surface, a bottom surface, and an imaginary median disposed between the ends forming two halves of the pallet; and,

at least one post projecting outwardly from each of the sides for cooperating with at least one indentation projecting inwardly from each of the sides of the tray or top piece, the posts on one half of the pallet being spaced from the median differently than the posts on the other half of the pallet such that when a top piece or tray is stacked upon the pallet, the posts of the pallet align and cooperate with the indentations of the top piece or tray only when the first end of the pallet and the first end of the tray or top piece are aligned one above the other and coplanar.

59. The pallet of Claim 58 wherein there is more than one post projecting upwardly from each of the sides of the pallet and there is more than one indentation projecting upwardly in each of the sides of the top piece or tray.

60. The pallet of Claim 59 wherein each post and each indentation is trapezoidal in shape.

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61. A pallet comprising:

at least one longitudinal rib with a top surface on a top surface of the pallet,
the top surface of the rib contacting either bottom surfaces of transverse ribs on
an underside of a tray or top piece placed on top of the pallet while indentations in the
tray or top piece couple with posts on the pallet.

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